



Abstract View

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Two Views of the Cold Filament

Georges L. Weatherly and Edward A. Kelley Jr.

Department of Oceanography, Florida State University, Tallahassee, FL 32306

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ABSTRACT

Two views of the Cold Filament, first described by Weatherly and Kelley, are presented. The first is a local view near 40°N, 62°W. There its upslope edge is found to be a front which by benthic standards is large (its downslope edge was not sampled). What distinguishes this benthic front from others is that it is a permanent feature in the abyssal ocean. Above the Cold Filament, relatively murky detached bottom layers were observed and tracked to where they separated from the bottom at the benthic front. Apparently these detached layers entrain overlying water (a density jump at their base apparently restricts entrainment of underlying water) primarily during the detachment process with comparably less entrainment thereafter. The second view, a regional one, comes from examining historical hydrographic sections. These indicate that the Cold Filament extends from the Newfoundland Ridge westward then southward to 24°N and possibly to ~20°N along the base of the continental rise. The Cold Filament is populated to be a part of an abyssal western boundary current in the North American Basin associated with a southern source of Antarctic Bottom Water.

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Headquarters: 45 Beacon Street Boston, MA 02108-3693
DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826
amsinfo@ametsoc.org Phone: 617-227-2425 Fax: 617-742-8718
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